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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Attorney Docket No. 2530

TRANSMITTAL LETTER

Bellevue, Washington 98007

August 25, 2000

TO THE ASSISTANT COMMISSIONER FOR PATENTS:

Transmitted herewith for filing under 137 C.F.R. § 1.53(b) by Express Mail is the

- X a. complete
 b. incomplete

patent application of: Barnaby Merrick HARFORD, Sendi WIDJAJA, Maja BOGDANOVIC and Clair HECTOR,

Title: **SYSTEM AND METHOD FOR MATCHING AN OFFER WITH A QUOTE**

- X 1. An application consisting of 49 pages of cover sheet, specification and claims and 13 sheets of formal drawings is attached.
- X 2. A newly executed Declaration and Power of Attorney is attached.
- X 3. An Assignment of the invention to Microsoft Corporation is attached. A Cover Sheet prepared in accordance with 37 C.F.R. § 3.31 is attached to the Assignment. Please record this Assignment in accordance with 37 C.F.R. § 3.11. The enclosed credit card payment form includes the \$40 Assignment fee.
- X 4. A filing date in accordance with 37 C.F.R. § 1.10 is requested. The Express Mail Certificate appears on the preceding page.
- X 5. The following additional documents are enclosed: Certificate of Express Mail, Petition to Make Special, 11 Patent References, Return Postcard.

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JC900 U.S. PRO

Jc936 U.S. PRO
09/648124
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BOX
PATENT APPLICATION

COMPUTATION OF FEE

	Number Filed		Number Extra		Rate		Basic Rate \$690.00
Total Claims	37	=	17	x	\$18/\$9	=	306.00
Independent Claims	5	=	2	x	\$78/\$39	=	156.00
Multiple Dependent Claims	-0-		---		\$260/\$130	=	
TOTAL							\$1152.00

 X 6. A Credit Card Payment form authorizing charges in the amount of \$1322.00 to cover the total fee as computed above plus the \$130.00 Petition to Make Special fee and 40.00 Assignment fee is enclosed.

Please address all further correspondence to:

MICHALIK & WYLIE^{PLLC}

14645 Bel-Red Road

Suite 103

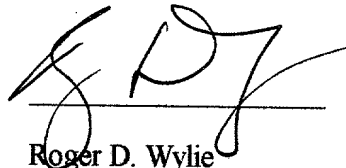
Bellevue, WA 98007

Phone: (425) 653-3520

fax: (425) 653-3603

Respectfully submitted,

MICHALIK & WYLIE^{PLLC}



Roger D. Wylie

Registration No. 36,974

In re Application of HARFORD et al.
Attorney Docket No. 2530

CERTIFICATE OF MAILING BY "EXPRESS MAIL"

"Express Mail" mailing label number EE591456241US

Date of Deposit: August 25, 2000

I hereby certify that the following documents:

New Patent Application in the name of Barnaby Merrick HARFORD, Sendi WIDJAJA, Maja BOGDANOVIC and Clair HECTOR for "**System And Method For Matching An Offer With A Quote,**" including 1 Page Cover Sheet, 36 Pages Specification, 11 Pages Claims, 1 Page Abstract, 13 Sheets Of Drawings, Transmittal Sheet, Credit Card Payment Form, Petition to Make Special, Eleven References, Executed Declaration and Power of Attorney, Assignment Recordation Cover Sheet and Assignment

are being deposited with the United States Postal Service "Express Mail Post Office To Addressee" Service under 37 C.F.R. 1.10 on the date indicated above and is addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

Sherie L. Dodson

(Typed or printed name of person mailing paper or fee)



(Signature of person mailing paper or fee)

09/648124
08/25/00
JCS36 U.S. PTO

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Harford et al.

Attorney Docket No. 2530

Filed: Concurrently Herewith

Express Mail Number: EE591456241US

Title: SYSTEM AND METHOD FOR MATCHING AN OFFER WITH A QUOTE

PETITION TO MAKE SPECIAL UNDER M.P.E.P. 708.02 VIII

Bellevue, Washington 98007

August 25, 2000

TO THE ASSISTANT COMMISSIONER FOR PATENTS:

In accordance with the provisions of M.P.E.P. 708.02 VIII, applicants respectfully petition to make special the above-identified application filed concurrently herewith. The required petition fee of \$130, as set forth in 37 C.F.R. 1.17(i), is included with this petition. As a basis for granting this petition, applicants submit the following statements and discussion.

For the sake of clarity, only the independent Claims of the application are discussed in this petition. Applicants submit that the independent Claims are allowable over the references found in the search, and therefore the dependent Claims are allowable at least because they are dependent upon allowable Claims. Nevertheless, applicants submit that the dependent Claims further define additional subject matter not shown or described in the prior art.

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The present application includes five independent Claims: Claims 1, 9, 16, 26, and 32. Claim 1 is directed to a computer-implemented method of matching an offer for a product with a supplier, comprising receiving the offer from a customer machine; obtaining at least one quote for the product from each of a plurality of suppliers and obtaining at least two quotes from one supplier in the plurality of suppliers, a first quote from the one supplier being lower than a second quote from the one supplier; identifying a qualifying quote for the product from each of the quotes obtained from the plurality of suppliers; comparing the qualifying quotes from each of the quotes obtained to identify a most-preferential quote of the qualifying quotes; if the offer exceeds the most-preferential quote, matching the offer with the supplier corresponding to the most-preferential quote; and evaluating any other quotes provided by the supplier corresponding to the most-preferential quote.

Claim 9 is directed to a computer-readable medium having computer-executable instructions, including receiving from a customer machine an offer representing a value that the customer is willing to exchange for a product; receiving a set of quotes from each of a plurality of suppliers to provide the product, and receiving at least two quotes from one supplier in the plurality of suppliers, a first quote from the one supplier being lower than a second quote from the one supplier; ranking each supplier in the plurality of suppliers according to the value of at least one quote in the set of quotes received from each supplier; selecting a highest ranked supplier from the plurality of suppliers; matching

the offer from the customer with the highest ranked supplier; and evaluating any other quotes provided by the supplier corresponding to the most-preferential quote.

Claim 16 is directed to a computer-implemented method for matching an offer for a product with a supplier, comprising receiving the offer from a customer machine, the offer identifying a price and a minimum acceptable quality for the product; calculating a first value based on the offer that reflects a desired margin; obtaining at least one quote for the product from each of a plurality of suppliers, each quote identifying a price for the product that the corresponding supplier is ready to accept, each product having a rating for the quality of the product being quoted by the corresponding supplier; selecting one quote from each of the suppliers; for those suppliers for which the one quote provided is below the second value, ranking those suppliers based on the rating associated with the product being quoted by the supplier; and selecting a most preferentially-ranked supplier as the match for the offer.

Claim 26 is directed to computer-readable medium having computer executable instructions comprising receiving an offer from a customer for a product, the product being subject to a criterion; calculating a first value, based on the offer, above which a quote for the product is not economically desirable; calculating a second value based on the offer that reflects a desired margin; obtaining from a plurality of suppliers at least one quote for the product, each quote including a price at which the corresponding supplier is prepared to provide the product and including a rating associated with the criterion of the particular product quoted by the corresponding supplier; discarding from the plurality of

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suppliers those suppliers that do not provide a quote below the first value; for those suppliers for which the one quote falls between the first value and the second value, ranking each supplier in the plurality of suppliers based on one quote provided by the suppliers, wherein the suppliers are ranked based on the price associated with the one quote provided by the suppliers; for those suppliers for which the one quote falls below the second value, ranking each supplier based on the one quote provided, wherein the suppliers are ranked based upon the criterion; and matching the offer with a most-preferentially ranked supplier.

Claim 32 is directed to a computer system for satisfying offers with quotes, comprising: an electronic travel agent, including a web server component configured to interface with a customer machine over a network connection and receive from the customer machine an offer for a product, the offer identifying a price for the product and a minimum quality rating for the product; a travel server component configured to obtain from each supplier in a plurality of suppliers, at least one quote to provide the product at a price and at a particular quality rating; a sorter component configured to rank the suppliers according to one quote provided by each of the plurality of suppliers with preferential rankings being awarded based on the quality rating associated with the corresponding quote; and the electronic travel agent being further configured to match the offer with a most-preferentially ranked supplier and to negotiate a purchase of the product from the most preferentially-ranked supplier.

A search of the prior art was conducted by a professional searcher at the request of applicants' attorneys. The search was conducted in Class 705, subclasses 5 and 37, and via a patents computer database. The patents developed by the search are listed below.

<u>Patent No.</u>	<u>Inventor(s)</u>
6,085,169	Walker et al.
6,085,164	Smith et al.
6,023,501	Wakamatsu
6,023,685	Brett et al.
6,014,644	Erickson
6,012,045	Barzilai et al.
5,995,602	Johnson et al.
5,897,620	Walker et al.
5,802,502	Gell et al.
5,797,127	Walker et al.
5,570,283	Shoolery et al.

Copies of each of these references are enclosed.

Walker et al. '169 (6,085,169) is directed to a system for receiving a conditional purchase offer (CPO) from a customer, and evaluating the received CPO against a number of CPO rules defined by a plurality of sellers, to determine if any of the sellers are willing to accept the CPO.

Smith et al. (6,085,164) is directed to an inventory control method and architecture that maximizes revenues derived from the sale of a given inventory resource to a customer. The method uses a continuous nested execution environment that allows a determination of a minimum acceptable price by continuously computing an optimal sale price based on current demand and supply and expected cancellations.

Wakamatsu (6,023,501) discloses a method for minimizing the cost of a call. A caller is connected using the least expensive connection available. For the duration of the call, a database is repeatedly searched for a route having a cost lower than the cost of a previously determined route. If the route of lower cost is detected, a new connection is established along the lower cost route, instead of the currently established connection. Johnson et al. (5,995,602) is also directed to minimizing the cost of a call by selected a least expensive route for the call.

Brett et al. (6,023,685) disclose a bid system in which multiple customers place bids for seats to an event (e.g., a concert), by designating a price and section. The bids for a section are collected, and the highest bids receive tickets for that section.

Erickson (6,014,644) discloses a computer system that utilizes a database that maintains information about sellers and buyers of goods and services. The database may be queried, or a buyer or seller may generate a "data cast object" requesting a transaction. All responses and replies are stored in the object, and the object may generate reminders as needed.

Barzilai et al. (6,012,045) disclose an online bid system in which a user may submit multiple bids, and only the lowest high bid is utilized until additional purchasers bid above the lowest high of the user.

Walker et al. '620 (5,897,620) is directed to a system for matching an unspecified time ticket with a flight. A plurality of flights are queried which satisfy the terms of the unspecified time ticket and a flight is selected accordingly.

Gell et al. (5,802,502) is directed to a system for selecting a communications service provider, wherein a plurality of providers are polled for the price of services and a selection is made based upon price, as well as additional factors such as service quality.

Walker et al. '127 (5,797,127) disclose a program for determining a price of an option to purchase an airline ticket, and for facilitating the sale and exercise of those options. By purchasing an option, a customer can lock in a specified airfare without tying up his money and without risking the loss of the ticket price if his travel plans change. Pricing of the options may be based on departure location criteria, destination location criteria, and travel criteria.

Shoolery et al. (5,570,283) is directed to a computerized reservation system, and is not directed to a bid process.

The references above do not disclose or make obvious the invention of Claim 1 and Claim 9. Briefly stated, Claim 1 and 9 are directed to a computer-implemented method and a computer medium that includes instructions that match offers by consumers for products with quotes for the products from providers. At least one provider provides different quotes for the same product. For instance, a hotel may return two or more different rates for the same hotel room. Each of the providers is ranked according to the most preferential quote provided by each provider. The provider offering the most preferential quote is selected as a match for the offer. At that point, other quotes submitted by the provider may be evaluated.

By providing a method by which higher quotes from a provider may be evaluated, the method of Claims 1 and 9 creates an incentive for a provider to quote its products at very low rates, sometimes even below cost. Although the lower offers from the supplier may be utilized (for example, when other offers by the supplier do not meet the cost restraints of the offer), the method provides a system by which the provider may have a higher offer at least evaluated, and possibly used to satisfy the customer's offer, that would not have been used if it were the only quote by the supplier. Thus, the methods of Claims 1 and 9 improve over existing electronic travel agents in that the first provider offering a satisfactory rate is not necessarily the provider selected. Rather, the lowest of multiple potential providers is selected, thereby improving the likelihood of a greater profit. Moreover, and importantly, each provider may quote different rates for the same products (defined in the Claim by one of the providers providing "at least two quotes"). By submitting low quotes, the supplier may have its other, most likely higher quotes, evaluated by the method of the present invention. The method therefore provides incentive for suppliers to provide low offers. None of the travel service systems or other systems disclosed in the above references utilize such a system of selecting a most preferential quote from among many quotes, and evaluating further quotes from the supplier of the most preferential quotes based upon that selection. For at least these reasons, applicants submit that the references do not disclose or make obvious the invention of Claims 1-15.

Claim 16 is also not disclosed or made obvious by the references found in the search. The method of Claim 16 provides a system by which a customer may provide an offer having a price and minimum quality, and if the customer offers higher than a minimum needed to receive that quality, is rewarded by receiving a product having a higher quality. In this aspect of the invention, the offer provided by the consumer identifies a rating, such as a star rating for a hotel, that the consumer is willing to accept. The queries made to potential providers may additionally request the rating of the products being quoted. Then, the system may identify as the offer winner the potential provider quoting the highest rating that at least satisfies the consumer's offer and that meets the desired profit margin of the system. In this way, if a provider quotes a rate that satisfies the consumer's price offer and that has a higher rating than acceptable by the consumer, the consumer is rewarded with better-than-acceptable accommodations at the desired price. None of the references disclose such a system.

Gell et al. discuss a system for selecting a communications service provider, wherein a plurality of providers are polled for the price of services and a selection is made based upon price, as well as additional factors such as service quality. Applicants submit that this reference is not analogous art to the present invention, because it does not involve receiving an offer from a consumer. This distinction is important, because in Gell et al., quality and price is factored by the communications network to determine whether it would be valuable to pay extra to have additional quality. The communications network is not evaluating the quality and price information against an offer made by a consumer. In

contrast, the method of Claim 16 receives an offer from the consumer, and the consumer does not know what price would provide a higher quality product. Instead, the customer is incentivized to provide higher offers for products in hope that he will get a better quality product. This motivation is not present in the system of Gell et al., because customers are not making offers for a product. For at least these reasons, applicants submit that Claims 16-25 are not disclosed or made obvious by the prior art found in the search.

Similarly, Claim 26 is directed to a offer and quote method wherein two values are set, and wherein ranking of provider quotes occurs between the two values based upon price, and below the lowest value based upon an alternate criterion. This method is also not shown or made obvious by the prior art found in the search. Thus, for at least these reasons, Claims 26-31 are allowable over the references.

Claim 32 is directed to a computer system having an electronic travel agent designed to rank suppliers according to one quote provided by each of the suppliers with preferential rankings being awarded based on the quality rating associated with the corresponding quote. As discussed above, none of the electronic travel agents found in the search include such features. For at least these reasons, applicants submit that Claims 32-37 are not disclosed or made obvious by the references found in the search.

Conclusion

For the reasons set forth above, applicants submit that the invention disclosed and Claimed is novel and unobvious in light of the prior art located in the search. Therefore,


In re Application of HARFORD ET AL.
Express Mail No. EE591456241US

applicants submit that this petition to make special should be granted and early action in the application is in order.

If the Office determines that all the Claims presented are not directed to a single invention, applicants will make an election without traverse as a prerequisite to the grant of special status. If in the opinion of the Office a telephone conference would expedite the prosecution of the subject application, the Office is invited to call the undersigned attorney at (425) 653-3571.

Signed at Bellevue, in the County of King, and State of Washington, August 25, 2000.

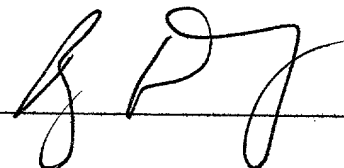
Respectfully submitted,



Roger D. Wylie, Registration No. 36,974
Attorney for Applicants
Michalik & Wylie^{PLLC}
14645 Bel-Red Rd.
Suite 103
Bellevue, Washington 98007

I hereby certify that this Petition is being deposited with the U.S. Postal Service in a sealed envelope as first class mail with postage thereon fully prepaid addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on August 25, 2000.

Date: August 25, 2000



A P P L I C A T I O N

F O R

P A T E N T

TO ALL WHOM IT MAY CONCERN:

Be it known that we, Barnaby Merrick Harford, a citizen of the United Kingdom, residing at 201 Galer Street, Apt 524, Seattle, Washington 98109; Sendi Widjaja, a citizen of Indonesia, residing at 18537 NE 19th Place, Bellevue, Washington 98008; Maja Bogdanovic, a citizen of Canada, residing at 715 2nd Ave. West, apt 106, Seattle, Washington 98119; and Clair Hector, a citizen of the United Kingdom, residing at 4016 Phinney Avenue North, Seattle, Washington 98103 have invented a certain new and useful SYSTEM AND METHOD FOR MATCHING AN OFFER WITH A QUOTE of which the following is a specification.

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SYSTEM AND METHOD FOR MATCHING AN OFFER WITH A QUOTE

FIELD OF THE INVENTION

5 The present invention relates to electronic commerce. More specifically, the invention relates to the purchase of travel accommodations, such as hotel rooms, in an electronic exchange transaction.

BACKGROUND OF THE INVENTION

10 More and more people are purchasing goods and services electronically, such as over the Internet. These mechanisms provide an outlet for suppliers having surplus inventory, and often allow purchasers to obtain desired goods or services at below-market rates. One common example of an electronic exchange between purchasers and suppliers is the "electronic travel agent," used to place an offer for travel accommodations, such as hotel rooms or airline tickets. However, existing electronic exchanges suffer from various problems. For instance, schemes employed by existing systems to satisfy offers from purchasers with quotes from suppliers do not create an incentive for the suppliers to quote their goods or services at rates significantly below market rates because the suppliers cannot benefit from quoting low rates. One reason is that existing systems satisfy a purchaser's offer by simply querying a list of suppliers to

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determine whether one or more of them can provide accommodations at a given rate, based on the offer value. The first qualified supplier that satisfies the offer is selected as the winner of the offer, even if the selected supplier does not quote the lowest rate. There is no incentive for a supplier to quote a lower rate.

In addition, existing schemes charge a purchaser the value of the purchaser's offer even if that value exceeds what the purchaser would have paid without the aid of the electronic travel service system. In other words, even if the purchaser's offer exceeds a published rate for the accommodations, existing schemes punish the purchaser by charging her the full value of the offer.

An effective electronic exchange system for satisfying an offer by a purchaser with a quote from a supplier has eluded those skilled in the art.

SUMMARY OF THE INVENTION

Briefly stated, the present invention overcomes the problems identified above by providing a system and method that satisfies offers from customers with quotes from suppliers in a way that increases the likelihood of achieving an acceptable match between the offer and a quote. The system of the present invention is configured to receive from a customer an offer for a product. The product may be any commodity available in commerce, such as

goods or services. The offer may include specific details to further identify the product being sought. For example, if the offer is for travel accommodations, the offer may identify a travel destination and a price at which the customer is willing to accept accommodations. The offer may additionally identify an area within the destination to more narrowly focus a list of potential suppliers.

The system queries in parallel multiple suppliers for rate quotes on the desired goods or services. Then, rather than selecting the first supplier that satisfies the offer, each of the suppliers are ranked according to the lowest rate quoted by each supplier. The supplier quoting the lowest rate is selected as a preliminary winner with the first right to accept the offer provided that the lowest rate is sufficiently below the offer. At that point, the offer can be matched with the supplier quoting the lowest rate. This system improves over existing electronic exchanges in that the first supplier quoting a satisfactory rate is not necessarily the one selected. Rather, the lowest of multiple potential suppliers is selected. Plus, the consumer may be benefited as well by this incentive to the suppliers to provide at least one low rate.

One improvement to the above-described system is a profit sharing program through which suppliers are not significantly harmed by quoting low rates. In this aspect of the invention, each provider may quote different rates for the same goods or

services. For instance, a hotel may return two or more different rates for the same hotel room. The system may select the winning provider in the same manner as above (e.g., by the lowest quoted rate) but then evaluate any other rate quotes provided by the winning provider. The system may satisfy the customer's offer with the winning provider at a higher rate (if one was provided) than the winning rate quoted, up to the customer's offer (typically adjusted for a reasonable broker's profit). In this way, even though the provider provides low rate quotes to win the offer, the provider may still realize a much higher rate for the goods or services by quoting additional, higher rate quotes as well. Yet another improvement to the above-described system is an upgrade reward system through which customers are incentivized to provide higher offers for the goods or services. In this aspect of the invention, the offer provided by the customer identifies a minimum quality rating, such as a star rating for a hotel, that the customer is willing to accept. The queries made to potential providers may additionally request the rating of the goods or services being quoted. In this way, the system may rank the potential providers by both rate quotes and ratings. Then the system may identify as the offer winner the potential provider quoting the highest rating that at least satisfies the customer's offer, and that has the lowest quoted rate. In this way, if a provider quotes a rate that satisfies the customer's offer price and that has a higher rating than

acceptable by the customer, the customer is rewarded with better-than-acceptable goods or services at the same price. Optionally, the system may calculate a value, based on the offer value, below which the rate quote must be before upgrading the customer, thereby creating a disincentive for the customer to offer extremely low. For example, the system may adjust the offer value by some factor or a percentage and only upgrade for rate quotes below the adjusted value.

These and other aspects of the invention, together with the benefits and advantages realized, will become apparent from a reading of the following detailed description in conjunction with the drawings, in which:

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a block diagram representing a typical computer system into which one implementation of the present invention may be incorporated;

Figure 2 is a functional block diagram generally illustrating one implementation of an electronic travel agent system constructed in accordance with the present invention;

Figure 3 is a functional block diagram generally illustrating one implementation of an electronic travel agent component of the system illustrated in Figure 2;

Figure 4 illustrates, in tabular format, one example of the type of information that may be stored within a customer database employed in one implementation of the present invention;

5 Figure 5 illustrates, in tabular format, one example of the type of information that may be stored within a hotel database employed in one implementation of the present invention;

Figure 6 illustrates, in tabular format, one example of the type of information that may be stored within an offer history database employed in one implementation of the present invention;

10 Figures 7-12 are sample screen displays that may be presented to a user when interfacing with one implementation of the present invention;

15 Figure 13 is a logical flow diagram generally illustrating a process performed by one implementation of the present invention to satisfy an offer from a customer with a quote from one or more suppliers;

Figure 14 is a logical flow diagram generally illustrating the functions performed by one implementation of the present invention to receive customer offer information;

20 Figure 15 is a logical flow diagram generally illustrating a process performed by one implementation of the present invention to request rates from hotels within selected areas;

Figure 16 is a logical flow diagram that generally illustrates a process for identifying a winning hotel from a

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Figure 18 illustrates several of the hotels charted in Figure 17 stack-ranked in accordance with the process illustrated in Figure 16; and

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DETAILED DESCRIPTION

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the invention is not limited to the particular embodiments described here.

Exemplary Computing Device

5 Figure 1 is a functional block diagram generally illustrating a computing device 100, one or more of which may be adapted for use in the illustrative system for implementing the invention. The computing device may be, for example, a personal computer, a handheld device such as a cell phone or a personal
10 digital assistant, multi-processor systems, microprocessor-based or programmable consumer electronics, network PCs, minicomputers, mainframe computers and the like. The invention may also be practiced in distributed computing environments where tasks are performed by remote processing devices that are linked through a
15 communications network. In a distributed computing environment, program modules may be located in both local and remote memory storage devices.

20 In its most basic configuration, computing device 100 typically may include at least one processing unit 102 and system memory 104. Depending on the exact configuration and type of computing device, system memory 104 may be volatile (such as RAM), non-volatile (such as ROM, flash memory, etc.), or some combination of the two. The basic configuration of the device 100 is illustrated in Figure 1 within dashed line 106.

Device 100 may also have additional features and functionality. For example, device 100 may also include additional storage (removable and/or non-removable) including, but not limited to, magnetic or optical disks or tape. Such additional storage is illustrated in Figure 1 by removable storage 108 and non-removable storage 110. Computer storage media includes volatile and nonvolatile, removable and non-removable media implemented in any method or technology for storage of information such as computer readable instructions, data structures, program modules, or other data. Memory 104, removable storage 108, and non-removable storage 110 are examples of computer storage media. Computer storage media includes, but is not limited to, RAM, ROM, EEPROM, flash memory or other memory technology, CD-ROM, digital versatile disks (DVD) or other optical storage, magnetic cassettes, magnetic tape, magnetic disk storage or other magnetic storage devices, or any other medium which can be used to store information and which can be accessed by device 100. Any such computer storage media may be part of device 100.

Device 100 includes one or more input devices 112 such as a keyboard, mouse, pen, voice input device, touch input device, scanner, or the like. One or more output devices 114 may also be included, such as a video display, audio speakers, a printer, or the like. Input and output devices are well known in the art and need not be discussed at length here.

Device 100 also contains communications connection 116 that allows the device 100 to communicate with other devices 118, such as over a local or wide area network. Communications connection 116 is one example of communication media. Communication media includes any information delivery media that serves as a vehicle through which computer readable instructions, data structures, program modules, or other data may be delivered on a modulated data signal, such as a carrier wave or other transport mechanism. The term "modulated data signal" means a signal that has one or more of its characteristics set or changed in such a manner as to encode information in the signal. By way of example, and not limitation, communication media includes wired media such as a wired network or direct-wired connection, and wireless media such as acoustic, electromagnetic (e.g., radio frequency), infrared, and other wireless media. The term computer readable media as used herein includes both storage media and communication media.

Illustrative Electronic Travel Agent System

Figure 2 is a functional block diagram generally illustrating one implementation of an electronic travel agent system (the system 200) constructed in accordance with the present invention. The system 200 may be implemented as software modules or components stored and executing on one or more computing devices, such as that illustrated in Figure 1. The system illustrated in Figure 2 and described here is but one of

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the customer machine 201. Via the browsing software 205, a user of the customer machine 201 may retrieve Web pages or other documents from other computing devices attached to the Internet 206, and may additionally provide information to those other
5 computing devices.

Each hotel within the hotel network 204 may either be connected to the Internet 206, such as over network connection 210, or may be directly connected to the booking system 203, such as through a dedicated network connection 212. It should be
10 appreciated that each hotel in the hotel network 204 may be connected to and interface with the booking system 203 in a conventional manner.

The booking system 203 may also have a network connection 214 to the Internet 206 to interface with other computing devices also connected to the Internet 206. The booking system 203 may include and maintain a data store 218 that contains availability and rate information for each of the hotels in the hotel network 204. If it is connected to the Internet 206, the booking system 203 may include information server software 216 for managing
20 transactions with other computing devices over the Internet 206. The booking system 203 is adapted to place queries to or receive from each hotel in the hotel network 204 current availability and rate information, and to store that information in the data store 218. The booking system 203 may make that information available
25 to entities interested in booking travel arrangements, such as

the electronic travel agent 202. Moreover, the booking system 203 is adapted to make reservations with hotels in the hotel network 204 upon request by those entities. One example of such a booking system 203 is the Pegasus hotel booking system in
5 common use today.

The electronic travel agent (ETA) 202 may include one or more computing devices, such as that illustrated in Figure 1, and is connected to the Internet 206 through a network connection 220. The ETA 202 may optionally be connected to the booking
10 system 203 through a dedicated network connection 221. The ETA 202 is illustrated in greater detail in Figure 3 and described below. Generally described, the ETA 202 includes a Web server component 222, a travel server component 224, a hotel finder component 226, and a data store 228. Although these four
15 components are shown, those skilled in the art, will appreciate that the functions of each described component may be merged into fewer components, or similarly, distributed among more components. The use of four illustrative components is for
simplicity of discussion only, and should not be viewed as an
20 exclusive list of components. Through the use of the described components, the ETA 202 interfaces with the customer machine 201 and the booking system 203 to administer an electronic exchange purchase transaction. As described in greater detail below, the
ETA 202 interfaces with the customer machine 201, via the
25 Internet 206, to receive an offer for travel accommodations. The

ETA 202 retrieves from the booking system 203 quotes for those travel accommodations made by the hotels in the hotel network 204. The ETA 202 then satisfies, if possible, the offer from the customer machine 201 with a winning hotel in the hotel network 204.

Figure 3 is a functional block diagram generally illustrating one implementation of the ETA 202. As mentioned above, the ETA 202 includes a Web server component 222, a travel server component 224, a hotel finder component 226, and a data store 228. The data store 228 of the described embodiment contains various types of information used by the different components of the ETA 202. For instance, the data store 228 includes a customer database 305 that is used to store information related to customers of the ETA 202. Figure 4 illustrates, in tabular format, one example of the type of information that may be stored within the customer database 305. Referring to Figure 4, a table 401 includes a record for each customer of the ETA 202. Each record may include a customer identifier 403, authentication information 405 for the customer, an email address 407 for the customer, and other information 409 associated with the particular customer.

The data store 228 also includes a hotel database 307 that contains information on each hotel in the hotel network 204. The hotel database 307 is queried by the hotel finder 226 to identify particular hotels within the hotel network 204 that may satisfy

an offer from the customer machine 201. Figure 5 illustrates, in tabular format, one example of the information that may be stored within the hotel database 307. Referring to Figure 5, a table 501 includes a record for each hotel in the hotel network 204.

5 Each record includes a hotel identifier 503 that uniquely identifies each hotel in the hotel network 204. The record may also include a rating 505 for the corresponding hotel, such as the familiar "star ratings" (e.g., one star equals economy, five stars equals luxury) in widespread use today. The record
10 additionally geographically identifies where the hotel is located by a destination 507 and possibly an area 509 within the destination. The average rate 511 for the hotel may be included within the record, as well as other information 513 associated with the corresponding hotel.

15 Returning to Figure 3, the data store 228 also includes an offer history database 309, which contains the storage information related to offers provided to the ETA 202 by various customers. Figure 6 illustrates, in tabular format, one example of the information that may be stored within the offer history
20 database 309. Referring to Figure 6, a table 601 includes a record for each offer provided to the ETA 202. Each record includes an offer identifier 603 to uniquely identify the offer, and the customer identifier 605 of the customer that provided the offer. The table 601 includes a column of information used to
25 purge stale records from the offer history database 309. In the

described example, a record for an offer is purged from the offer history database 309 once the check-in date 607 corresponding to the offer has passed. In this embodiment, stale records are periodically purged from the offer history database 309 based on the check-in date 607. Other offer information 609 may also be included in the offer history database 309.

Returning once again to Figure 3, other files 311 may also be contained within the data store 228. For instance, HTML and XML files served by the Web server 222 may be contained within the data store 228, as well as other information.

The Web server component 222 of the ETA 202 controls the interface between the ETA 202 and the customer machine 201. The Web server 222 includes a user interface component 303 configured to assemble and serve Web pages over the Internet 206 to the customer machine 201. The user interface 303 may also receive information provided by the customer machine 201 through those Web pages. The user interface 303 may then make information received from the customer machine 201 available to the Web server 222, which may in turn make that information available to other components of the ETA 202, such as the hotel finder 226 or the travel server 224.

The hotel finder 226 is configured to access the hotel database 307 when an offer is provided to it by the Web server 222. Based on the parameters provided with the offer, the hotel finder 226 accesses the hotel database 307 to identify potential

hotels within the hotel network 204 that may satisfy the offer. It should be noted that the hotel finder 226 need not contact the hotels directly or the booking system 203 to identify hotels that may potentially satisfy the offer. Rather, sufficient
5 information about the participating hotels in the hotel network 204 is stored locally within the hotel database 307.

The Web server 222 and the hotel finder 226 also interface with the travel server 224. The travel server 224 is a component of the ETA 202 configured to interface with the booking system
10 203 to query for availability and rates of the hotels and the hotel network 204. The travel server 224 is also configured to make hotel reservations with the booking system 203. The travel server 224 includes a sorter component 313 that is configured to manipulate data received from the booking system 203 to rank
15 potential hotels in accordance with one embodiment of the invention.

Illustrative User Interface Screens

Figures 7-12 are sample screen displays that may be
20 presented to a user of the customer machine 201 when interfacing with the ETA 202. Each of the sample screen displays represents one or more HTML or XML pages assembled and served by the user interface component 303 of the Web server 222, interpreted and rendered by the Web browsing software 205 of the customer
25 machine 201. The sample screen displays are provided as examples

only, and the particular layout of the sample screen displays are not critical to a proper functioning of the invention.

Figure 7 is a graphical representation of an initial screen display 701 presented to a user to begin the offer process. In this screen display 701, the user is prompted with a destination field 703 so that the user may identify the destination of the travel, such as a particular city. In this implementation, the destination field 703 is a drop-down box that contains pre-selected destination names from which the user may choose, corresponding to at least some of the hotels that have agreed to participate. The user is also prompted with a check-in field 705 and a check-out field 707 which together allow the user to define the desired lodging dates. By activating the next button 709, the user causes the information provided in the several fields on the initial screen display 701 to be posted to the Web server 222, where it is stored. Activating the next button 709 may also cause the user interface component 303 to transmit to the customer machine 201 an area selection screen display.

Figure 8 is a graphical representation of an area selection screen display 801. Each particular destination (e.g., a city) may be further subdivided into "areas" to allow the user to more narrowly specify the location where the user will travel. In this embodiment, the area selection screen display 801 prompts the user with a map 803 of the particular destination previously identified. Within the map 803 are graphical representation of

areas from which the user may choose. For instance, in the sample screen display illustrated in Figure 8, map 803 includes four areas (midtown, downtown, upper east side, upper west side) within the selected destination.

5 The area selection screen display 801 also includes selection fields 805 that allow the user to select, such as by clicking on the check boxes or the map, one or more areas of interest to the user within the selected destination. By activating the next button 809, the user causes the information
10 provided in the several fields on the area selection screen display 801 to be posted to the Web server 222, where the information is stored. Activating the next button 809 may also cause the user interface component 303 to transmit to the customer machine 201 an offer-price screen display.

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15 Figure 9 is a graphical representation of an offer-price screen display 901. In this screen display 901, the user is prompted to enter an offer price in an offer price field 903. The user is also prompted to identify a minimum acceptable hotel class rating, such as through a series of radio-button selection
20 fields 905.

 The offer-price screen display 901 may be generated by the user interface component 303 of the Web server 222 based on information provided through the other screen displays. For example, the Web server 222 (Figure 3) may query the hotel
25 database 307, via the hotel finder 226, for information about the

hotels within the area or areas selected by the user in the area selection screen display 801. That information may then be incorporated into the offer-price screen display 901 when presented to the customer machine 201. In that way, the user may be presented with information tailored to the specific area of interest. More specifically, the offer-price screen display 901 may include the average published rates 907 for the participating hotels in the selected areas. Moreover, if there are no hotels of a particular class rating in the selected area, those nonexistent class ratings are not presented in the offer-price screen display 901 (e.g., no one-star or five-star hotels in the selected area). Optionally, the offer-price screen display 901 (or any other screen display) may provide the customer with an option of identifying particular hotels that the customer deems to be undesirable, and which should be avoided during the electronic exchange process. Again, by activating the next button 909, the user causes the information provided in the several fields on the offer-price screen display 901 to be posted to the Web server 222, where the information is stored.

Activating the next button 909 may also cause the user interface component 303 to transmit to the customer machine 201 an identification screen display.

Figure 10 is a graphical representation of an identification screen display 1001 that may be used to prompt the customer to identify himself to the ETA 202 and initiate the offer matching

process. The customer may be presented with a customer ID field 1003 and a password field 1005. Together those fields allow the customer to identify himself if the customer already has an account with the ETA 202. If not, then the customer may activate a create account button 1007 to retrieve a create account screen display, illustrated in Figure 11 and described below. The identification screen display 1001 may additionally include a check box field 1009 to allow the customer to request that the password be saved to the customer machine 201. The identification screen display 1001 may additionally prompt the customer for an e-mail address 1011 to which confirmation may be transmitted. By activating the offer button 1013, the customer may cause the information provided on the identification screen display 1001 to be transmitted to the ETA 202, thereby causing the ETA 202 to begin attempting to find a match for the offer.

Figure 11 is a graphical representation of a create account screen display 1101 that may be used to allow the customer to create an account with the ETA 202. The various input fields on the create account screen display 1101 allow the customer to provide sufficient information to create the account. For example, the customer may provide a desired customer ID 1103 (e.g., screen name), a desired password 1105, an e-mail address 1107, a home or mailing address 1109, credit card information 1113, and/or other information, such as travel preferences 1115. Activating the create button 1117 causes the information in the

various fields to be posted to the Web server 222, which in turn stores the information as a new record in the customer database 305. The create button 1117 may additionally return control to the identification screen display 1001 to proceed with the
5 current offer transaction.

Figure 12 is a graphical representation of a reporting screen display 1201 that may be used to report a successful electronic exchange match (as described in detail below) to the customer machine 201. The reporting screen display 1201 may
10 present the customer with confirmation that the customer's offer has been satisfied, or with notice that it was not. As can be understood, when the system 200 attempts to book the travel services, the quotes supplied by the providers other than a satisfying quote are not shown to the user. The sample reporting
15 screen display 1201 of Figure 12 reflects a confirmation of successfully satisfying the offer. The transaction particulars (e.g., the amount charged to the customer's credit card) may be presented to the user as a record of the transaction.

In summary, the preceding discussion has been directed to
20 describing the configurations and functions of each of the several components, data structures, and subsystems of the electronic travel agent system generally depicted in Figure 2. The following discussion is presented as a detailed description of the interactions of the described components, data structures,

and subsystems through processes performed in accordance with implementations of the invention.

Operation of an Exemplary Electronic Exchange Matching System

5 Figures 13-19 are logical flow diagrams that generally illustrate several processes performed by the illustrative electronic travel agent system illustrated in Figures 1-12 and described above. The general and specific operation of the system 200 is illustrated through the several flow diagrams described below, with reference to the components of the system described above and illustrated in Figures 1-12.

10 Figure 13 is a logical flow diagram generally illustrating a process performed by the system 200 to satisfy an offer from a customer with a quote from one or more suppliers. The process begins at step 1303, where the system 200 receives customer offer information. The functions performed at step 1303 are illustrated in detail in Figure 14 and described below. Briefly described, the customer provides sufficient information for the system 200 to initiate the offer matching process. For example, 15 in the described embodiment, the customer should at least identify an offer price and a description of the goods or services, such as a travel destination. The customer may additionally identify an area within the destination and a minimum desired hotel class rating. In addition, the system 200 20 may request payment (e.g., credit card) information from the

25

customer prior to proceeding with the offer process. Once that information is received, the process continues to step 1305.

At step 1305, rates are requested from suppliers (e.g., hotels) that may possibly satisfy the customer's offer. The functions performed at step 1305 are illustrated in detail in Figure 15 and described below. Briefly described, the ETA 202 identifies hotels within the hotel network 204 that are within the destination (and area if appropriate) identified in the customer's offer. If a minimum hotel class rating was specified, only hotels satisfying at least that rating are identified. The ETA 202 then requests rates from those identified hotels. For reasons that are explained below, each hotel may return a ladder of rates for the particular accommodations sought. In other words, a hotel may return several, different rates that the hotel is willing to accept for the accommodations (i.e., the same hotel room). After the rates are returned from the identified hotels (or a timeout has occurred), the process continues to step 1307.

At step 1307, the "winning" hotel is identified. The functions performed at step 1307 are illustrated in detail in Figure 16 and described below. Briefly described, the ETA 202 identifies the hotel returning the lowest rate as the winning hotel. If the offer includes a minimum hotel rating, the ETA 202 may identify the hotel having the highest rating and the lowest price as the winning hotel. It should be appreciated that this brief description assumes that at least one hotel returned a rate

below the customer's offer (factoring in a reasonable broker's profit). After the winning hotel has been identified, the process continues to step 1309.

At step 1309, the accommodations are booked with the winning hotel. The functions performed at step 1309 are illustrated in detail in Figure 19 and described below. Briefly described, the ETA 202 determines whether the winning hotel provided other rates for the accommodations. As mentioned above, each hotel may provide several, different rates for the same accommodations. If the winning hotel provided other rates, the system books the highest rate provided that is still below the customer's offer (adjusted to account for transactional costs, desired broker's profit, and the like). Thus, although the winning hotel provided the lowest rate to win the offer, the hotel is still able to increase its average daily rate for accommodations booked through the system 200 by providing rates in addition to the lowest acceptable rate.

At step 1311, the customer is charged for the accommodations. Typically, the customer's credit card is charged the offer amount, unless, in rare circumstances, the offer amount actually exceeds the published rate for the winning hotel. In that case, to protect the customer, the customer is only charged the published rate. It should be noted that the customer might be charged taxes, which may make the actual amount charged to the customer's credit card slightly higher than the offer amount.

Alternatively, the offer amount may be adjusted in advance to reflect an estimate of the taxes that will be charged, in which case the amount charged to the customer's credit card may not exceed the offer amount. Once the customer has been charged, and appropriate notifications given, the process illustrated in Figure 13 terminates.

Figure 14 is a logical flow diagram generally illustrating the functions performed at step 1303 of the process illustrated in Figure 13 to receive customer offer information. The process of Figure 14 begins at step 1403, where the customer is prompted for information about the customer's travel plans, in particular the travel destination (e.g., a city) and the dates of travel. For example, the customer may be presented with the initial screen display 701 illustrated in Figure 7 and described above.

At step 1405, the ETA 202 receives the travel information from the customer. The travel information may be received at the Web server 222 via the user interface component 303. As mentioned above, the information provided in each of the several data entry fields of the initial user interface 701 may be transmitted to the Web server 222 in response to activating the next button 709.

At decision step 1407, the ETA 202 determines whether the destination provided with the travel information includes more than a single area. The Web server 222 may issue a request to the hotel finder 226 to make the determination. The hotel finder

226 may query the hotel database 307 to determine whether the identified destination includes multiple areas. If not, the process continues to step 1413, described below. If the identified destination does include multiple areas, the process
5 continues to step 1409.

At step 1409, the customer is prompted to select an area within the destination. To perform this step, the Web server 222, via the user interface 303, may present the customer machine 201 with the area selection screen 801. As discussed above, the
10 area selection screen presents the customer with two or more areas from which to choose one or more desired areas. At step 1411, the Web server 222 receives the selected area or areas from the customer machine 201 and the process continues to step 1413.

At step 1413, the customer is prompted to provide a desired hotel rating and a desired offer price. The customer may be
15 presented with the offer-price screen 901 illustrated in Figure 9 and described above. Optionally, the Web server 222, via the hotel finder 226 and hotel database 307, may identify which class (e.g., hotel star rating) of accommodations is available within
20 the customer's selected area or areas. Likewise, the Web server 222, via the hotel finder 226 and hotel database 307, may calculate an average rate for each class of hotel. That information may be incorporated into the offer-price screen 901 prior to transmission to the customer machine 201. In that
25 manner, the customer is presented with only options that have

actual meaning in the customer's selected areas. The ETA 202 receives, via the Web server 222, the customer's minimum desired hotel rating and the offer price at step 1415.

Figure 15 is a logical flow diagram generally illustrating a process performed by the ETA 202 to request rates from hotels within the customer's selected areas. The process begins at step 1503 where the hotels within the hotel network 204 that satisfy the customer's defined criteria are identified. For instance, the hotel finder 226 may retrieve the hotel identifiers for those hotels in the hotel database 307 that are within the customer's selected areas and which have the customer's minimum desired rating. Alternatively, the hotel finder 226 may retrieve only a limited number of the hotels from the hotel database 307. For example, to avoid overwhelming the booking system 203, the hotel finder 226 may retrieve only ten (or any other number) randomly-selected hotels within the selected areas. The hotel finder 226 may additionally retrieve a number of identifiers associated with hotels having a higher rating than the minimum set by the customer. Once the potential hotels are identified, the process continues to step 1505.

At step 1505, a request for rates and availability is issued to the booking system 203 for each hotel identified at step 1503. Those skilled in the art will appreciate that each request may be issued by the travel server 224 to the booking system in the form of an "avail" message including the hotel identifier 503 and a

rate plan code. The hotel identifier 503 identifies the particular hotel from which availability and rates are requested, while the rate plan code indicates to the booking system 203 that specially negotiated rates are being requested. The request
5 additionally includes other information such as the dates of travel, number of rooms, number of occupants, smoking preference, and the like. A separate request is issued for each hotel.

The process waits at decision step 1507 until a response is received for each request transmitted, or until a timeout occurs.

10 If all the responses are received, the process returns to step 1305 of the process illustrated in Figure 13. If a timeout occurs, the process returns to step 1305 with those responses that have been received.

Figure 16 is a logical flow diagram which, in conjunction with Figures 17 and 18, generally illustrates a process for
15 identifying a winning hotel from those responses received by the travel server 224. Steps 1603-1611 (within the dashed-line box) illustrate a subprocess by which the relevant hotels are grouped for evaluation. Steps 1603-1611 are best described with

20 reference to the chart illustrated in Figure 17. The process illustrated in Figure 16 will be described in the context of an example hotel-rate query in which eight hotels (Hotel A through Hotel H) each returned a set of rates for accommodations. The offer amount for this example is \$150. The lowest rate provided
25 by each hotel is as follows: Hotel A \$122, Hotel B \$132, Hotel C

\$152, Hotel D \$144, Hotel E \$137, Hotel F \$120, Hotel G \$127, and Hotel H \$123.

At step 1603, the ETA 202 calculates a value, BV_1 , that represents the customer's offer amount adjusted for the transactional costs of booking the accommodations and also adjusted for any promotional or other special circumstances. BV_1 is calculated using the following equation:

$$BV_1 = \text{Offer} * (1-X) - Y + Z$$

where "Offer" is the customer's offer amount, "X" is the cost of the transaction as a percentage, "Y" is a fixed cost of the transaction, and "Z" is a factor which allows for promotions or other variances to the equation (may be either positive or negative, depending on circumstances). Thus, BV_1 is the value above which it is economically impractical to pursue booking accommodations. In this example, the offer amount is \$150 and the calculated value of BV_1 is \$140.

At step 1605, the ETA 202 calculates another value, BV_2 , that represents the customer's offer amount adjusted only for the transactional costs and for a minimum desired profit. BV_2 is calculated using the following equation:

$$BV_2 = \text{Offer} * (1-X) - Y + P$$

where "Offer" is the customer's offer amount, "X" is the cost of the transaction as a percentage, "Y" is a fixed cost of the transaction, and "P" is the minimum desired profit for the

transaction. In this example, the offer amount is \$150 and the calculated value of BV_2 is \$130.

At decision step 1607, a determination is made whether hotels have provided rate quotes below BV_1 . In other words, if it would not be economically practical to book a reservation at any of the rates quoted by the selected hotels, then the customer's offer amount is too low and the process returns an error at step 1609. The error may be handled in any conventional manner, such as by prompting the customer for more information or simply indicating to the customer that a match could not be found. In addition, the offer history database 309 may be updated to reflect the offer.

At step 1611, the hotels are each assigned to a Group according to the lowest rate provided by each hotel. The functions performed at step 1611 are best described with reference to the chart illustrated in Figure 17. Referring now to Figure 17, there is shown a chart having each hotel (e.g., Hotel A to Hotel H) along the X-axis, and dollar values along the Y-axis. The customer's offer 1702 is represented by the uppermost dashed line. Also plotted are the computed values of BV_1 1704 and BV_2 1706. The data points plotted on the chart represent the lowest rate quoted by each of the several hotels. For example, Hotel A, a four-star hotel, provided a rate quote below BV_2 . It should be appreciated that each of the several

hotels may have provided multiple rate quotes, but only the lowest provided by each is represented on the chart in Figure 17.

Returning to step 1611 of Figure 16, and still referring to Figure 17, those hotels with rates within the range between BV_1 and BV_2 (e.g., $\$130 < \text{rate} < \140) are assigned to Group A, while those hotels with rates below BV_2 (e.g., $\text{rate} < \$130$) are assigned to Group B. Thus, in this example, Hotels B (\$132) and E (\$137) are in Group A, while Hotels A (\$122), F (\$120), G (\$127), and H (\$123) are in Group B. Those hotels not having a lowest rate below BV_1 (e.g., Hotels C (\$152) and D (\$144)) are discarded.

At step 1613, the hotels in Groups A and B are stack ranked. The hotels in Group A (e.g., Hotels B and E) are ranked strictly according to price (e.g., without regard to hotel class), e.g., the lower the price the higher the ranking. The hotels in Group B (e.g., Hotels A, F, G, and H) are ranked first according to hotel class rating (e.g., the higher the rating, the higher the ranking), and then by price (again, the lower the price, the higher the ranking). The resulting stack is illustrated in Figure 18. Thus, it will be appreciated that the hotels are ranked as follows:

highest	Hotel A	\$122	4 star
	Hotel G	\$127	4 star
	Hotel F	\$120	3 star
	Hotel H	\$123	3 star
	Hotel B	\$132	3 star
lowest	Hotel E	\$137	4 star

At step 1615, the hotel ranked the highest (Hotel A in this example) is selected as the winning hotel. It should be appreciated, with reference to Figure 17, that Hotel A is the winning hotel despite the fact that another hotel, Hotel F, actually provided a lower rate quote (i.e., $\$120 < \122). Indeed, under the scheme employed by this embodiment of the invention, even Hotel G ranks above Hotel F despite the higher cost of Hotel G (i.e., $\$127$ versus $\$120$). This is a result of giving preference to the hotel class rating over price for those Hotels that provide rate quotes below BV_2 . When the winning hotel is selected, the process returns the winner to step 1307 of the process illustrated in Figure 13.

Figure 19 is a logical flow diagram generally illustrating a process for booking the accommodations with the winning hotel. It will be appreciated from the following discussion that, although the hotel having the lowest quoted rate is selected as the winner of the offer, the actual rate booked for the accommodations may be higher than the winning rate if the winning hotel provided multiple rates. The process begins at decision block 1903 where a determination is made whether the rate used to select the winning hotel is below BV_2 . For instance, the travel server 224 or other component of the ETA 202 may compare the winning hotel's rate against the value of BV_2 calculated above. If that rate is not below BV_2 , the process continues to step 1905, where the lowest rate is selected to be booked for the

accommodations. However, if the winning rate is below BV_2 , the process continues to step 1907.

At step 1907, the travel server 224 determines whether the winning hotel provided any other rates for the accommodations.

5 As mentioned above, in response to the request for availability, the several hotels may submit several different rates for the same accommodations. If the winning hotel provided other rates in addition to the rate that won the offer, the travel server 224, at step 1909, selects the highest such rate that is still
10 below BV_2 as the rate to be booked. In this manner, although the hotel was willing to provide accommodations at the winning rate, the hotel may be benefited by the system 200 in the form of bookings at rates that are higher than the lowest rate risked by the hotel, yet still satisfy the customer's offer.

15 At decision step 1911, a determination is made whether the rate selected for booking (e.g., either the winning rate or a higher rate) is higher than the winning hotel's published rate for the accommodations. Decision step 1911 is essentially a customer-protection reality check to ensure that customers are
20 not charged for accommodations made through the system 200 in excess of what would be charged having gone through conventional travel arrangements. If the selected rate is above the published rate, then, at step 1913, the published rate is selected for booking and the process continues to step 1915. Otherwise, the

currently selected rate remains the desired rate and the process continues to step 1915.

At step 1915, the travel server 224 attempts negotiate the purchase of the product, in this example attempts to book the accommodations with the booking system 203 at the selected rate. If, at decision step 1917, the travel server 224 is successful at booking the accommodations at the selected rate, the process returns success to step 1309 illustrated in Figure 13. However, if the travel server 224 fails to successfully book the accommodations, the process continues to step 1921.

At step 1921, the travel server 224 was unable to book the accommodations with the winning hotel; for example, a hotel providing a rate quote may respond that it no longer has availability at that rate. Accordingly, the winning hotel is removed from the ranked list of potential hotels (illustrated in Figure 18). Then, at step 1923, the newly-highest ranking hotel is selected as the new winning hotel. The process then returns to decision step 1903 and repeats as described above.

Although the system chosen to describe the present invention is an electronic travel agent system, those skilled in the art will appreciate that many other electronic exchanges may benefit equally from the present invention. Moreover, the described implementations of the invention are susceptible to various modifications and alternative constructions. It should be understood, that there is no intention to limit the invention to

the specific form or forms disclosed, but on the contrary, the intention is to cover all modifications, alternative constructions, and equivalents falling within the spirit and scope of the invention.

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What is Claimed is:

1. A computer-implemented method of matching an offer for a product with a supplier, comprising:

receiving the offer from a customer machine;

5 obtaining at least one quote for the product from each of a plurality of suppliers and obtaining at least two quotes from one supplier in the plurality of suppliers, a first quote from the one supplier being lower than a second quote from the one supplier;

10 identifying a qualifying quote for the product from each of the quotes obtained from the plurality of suppliers;

comparing the qualifying quotes from each of the quotes obtained to identify a most-preferential quote of the qualifying quotes;

15 if the offer exceeds the most-preferential quote, matching the offer with the supplier corresponding to the most-preferential quote; and

evaluating any other quotes provided by the supplier corresponding to the most-preferential quote.

20

2. The computer-implemented method of claim 1, wherein the offer includes a price and a description of the product.

25 3. The computer-implemented method of claim 1, wherein the product is a travel service.

4. The computer-implemented method of claim 1, wherein, in case the one quote is the most-preferential quote, evaluating any other quotes comprises satisfying the offer with the second quote from the one supplier.

5. The computer-implemented method of claim 4, wherein the one quote is the lowest quote made by the one supplier.

6. The computer-implemented method of claim 4, further comprising negotiating a purchase of the product from the supplier corresponding to the most-preferential quote.

7. The computer-implemented method of claim 6, wherein negotiating the purchase of the product from the supplier includes making a reservation for a travel service provided by the supplier at a value corresponding to the second quote.

8. The computer-implemented method of claim 1, wherein comparing the qualifying quotes from each of the quotes obtained includes calculating a value above which a particular quote is not economically viable and excluding quotes above the calculated value.

9. A computer-readable medium having computer-executable instructions, comprising:

receiving from a customer machine an offer representing a value that the customer is willing to exchange for a product;

5 receiving a set of quotes from each of a plurality of suppliers to provide the product, and receiving at least two quotes from one supplier in the plurality of suppliers, a first quote from the one supplier being lower than a second quote from the one supplier;

10 ranking each supplier in the plurality of suppliers according to the value of at least one quote in the set of quotes received from each supplier;

selecting a highest ranked supplier from the plurality of suppliers;

15 matching the offer from the customer with the highest ranked supplier; and

evaluating any other quotes provided by the supplier corresponding to the most-preferential quote.

20 10. The computer-readable medium of claim 9, wherein the value of the one quote includes a price for the product.

11. The computer-readable medium of claim 10, wherein the value of the one quote includes a quality rating associated with the
25 product quoted by the supplier.

12. The computer-readable medium of claim 9, wherein the value of the one quote includes a quality rating associated with the product quoted by the supplier.

5

13. The computer-readable medium of claim 9, wherein, in case the one quote is the most-preferential quote, satisfying the offer with the second quote from the one supplier.

10

14. The computer-readable medium of claim 9, wherein the product includes a characteristic having a rating, the offer identifying an acceptable rating value and wherein the quote received from a each supplier identifies the rating of the product being quoted by that supplier.

15

15. The computer-readable medium of claim 14, wherein the product includes a travel service and the characteristic includes a quality of the travel service.

16. A computer-implemented method for matching an offer for a product with a supplier, comprising:

receiving the offer from a customer machine, the offer identifying a price and a minimum acceptable quality for the product;

calculating a first value based on the offer that reflects a desired margin;

obtaining at least one quote for the product from each of a plurality of suppliers, each quote identifying a price for the product that the corresponding supplier is ready to accept, each product having a rating for the quality of the product being quoted by the corresponding supplier;

selecting one quote from each of the suppliers;

for those suppliers for which the one quote provided is below the second value, ranking those suppliers based on the rating associated with the product being quoted by the supplier; and

selecting a most preferentially-ranked supplier as the match for the offer.

17. The computer-implemented method of claim 16, further comprising:

calculating a second value, based on the offer, above which a quote for the product is not economically desirable; and

for those suppliers for which the one quote provided is between the first value and the second value, ranking those suppliers based on the cost associated with the corresponding quote.

5

18. The computer-implemented method of claim 16, wherein obtaining at least one quote includes obtaining at least two quotes from one supplier in the plurality of suppliers, a first quote from the one supplier being lower than a second quote from the one supplier; and, in case the one quote is the most-preferential quote, satisfying the offer with the second quote from the one supplier.

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19. The computer-implemented method of claim 16, wherein quotes having higher ratings are ranked at a higher level of preference.

15

20. The computer-implemented method of claim 19, wherein quotes having the same ratings are ranked in descending order of preference according to the cost associated with each quote.

20

21. The computer-implemented method of claim 17, further comprising selecting a quote provided by the most preferentially-ranked supplier as the quote that satisfies the offer.

22. The computer-implemented method of claim 21, wherein the quote that satisfies the offer comprises the lowest quote provided by the most preferentially-ranked supplier.

5 23. The computer-implemented method of claim 21, wherein the quote that satisfies the offer comprises a quote provided by the most preferentially-ranked supplier other than the lowest quote provided.

10 24. The computer-implemented method of claim 23, wherein the quote that satisfies the offer comprises the highest quote provided by the most preferentially-ranked supplier.

15 25. The computer-implemented method of claim 23, wherein the quote that satisfies the offer comprises the highest quote provided by the most preferentially-ranked supplier that is still below the first value.

26. A computer-readable medium having computer executable instructions, comprising:

receiving an offer from a customer for a product, the product being subject to a criterion;

5 calculating a first value, based on the offer, above which a quote for the product is not economically desirable;

calculating a second value based on the offer that reflects a desired margin;

10 obtaining from a plurality of suppliers at least one quote for the product, each quote including a price at which the corresponding supplier is prepared to provide the product and including a rating associated with the criterion of the particular product quoted by the corresponding supplier;

15 discarding from the plurality of suppliers those suppliers that do not provide a quote below the first value;

20 for those suppliers for which the one quote falls between the first value and the second value, ranking each supplier in the plurality of suppliers based on one quote provided by the suppliers, wherein the suppliers are ranked based on the price associated with the one quote provided by the suppliers;

for those suppliers for which the one quote falls below the second value, ranking each supplier based on the one quote provided, wherein the suppliers are ranked based upon the criterion; and

matching the offer with a most-preferentially ranked supplier.

27. The computer-readable medium of claim 26, further comprising
5 negotiating a purchase of the product by the customer from the most-preferentially ranked supplier.

28. The computer-readable medium of claim 26, wherein the first value corresponds to the value of the offer adjusted for
10 transactional costs associated with a purchase of the product.

29. The computer-readable medium of claim 26, wherein the second value corresponds to the value of the offer adjusted for
15 transactional costs associated with a purchase of the product plus a desired profit.

30. The computer-readable medium of claim 26, wherein the criterion is a quality of the product quoted by a particular supplier.

31. The computer-readable medium of claim 26, further comprising:

for those suppliers for which the one quote provided is below the second value, ranking those suppliers based first on
25 the rating associated with the product being quoted by the

supplier and based second on the price associated with the product.

32. A computer system for satisfying offers with quotes,
5 comprising:

an electronic travel agent, including:

a web server component configured to interface with a customer machine over a network connection and receive from the customer machine an offer for a product, the offer identifying a price for the product and a minimum quality rating for the
10 product;

a travel server component configured to obtain from each supplier in a plurality of suppliers, at least one quote to provide the product at a price and at a particular quality
15 rating;

a sorter component configured to rank the suppliers according to one quote provided by each of the plurality of suppliers with preferential rankings being awarded based on the quality rating associated with the corresponding quote; and

20 the electronic travel agent being further configured to match the offer with a most-preferentially ranked supplier and to negotiate a purchase of the product from the most preferentially-ranked supplier.

33. The computer system of claim 32, wherein the sorter component is further configured to rank the suppliers based first on the quality rating associated with the corresponding quote and second on the price associated with the corresponding quote.

5

34. The computer system of claim 32, wherein the electronic travel agent is further configured to negotiate a purchase of the product from the most preferentially-ranked supplier at a higher price than the price associated with the one quote provided by the most preferentially-ranked supplier.

10

35. The computer system of claim 34, wherein the higher price is the price associated with another quote provided by the most preferentially-ranked supplier.

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36. The computer system of claim 32, wherein the sorter component is further configured to calculate a value, based on the offer, above which it is economically practical to match the offer with a supplier.

20

37. The computer system of claim 36, wherein the sorter component is further configured to discard those suppliers that do not provide a quote below the calculated value.

Abstract of the Disclosure

Described is a system and method that satisfies offers from customers with quotes from suppliers in a way that increases the likelihood of achieving an acceptable match. The system of the present invention is configured to receive from a customer an offer for a product. The system queries in parallel multiple suppliers for rate quotes on the desired product. Each of the suppliers is ranked according to the lowest rate quoted by each supplier. The supplier quoting the lowest rate is selected as the winner of the offer. The system may then evaluate any other rate quotes provided by the winning provider. The system may satisfy the customer's offer with the winning provider at a higher rate (if one was provided) than the winning rate quoted, up to the customer's offer (perhaps adjusted for a reasonable profit). In this way, even though the provider provides low rate quotes to win the offer, the provider may still realize a much higher rate for the goods or services by quoting additional, higher rate quotes as well.

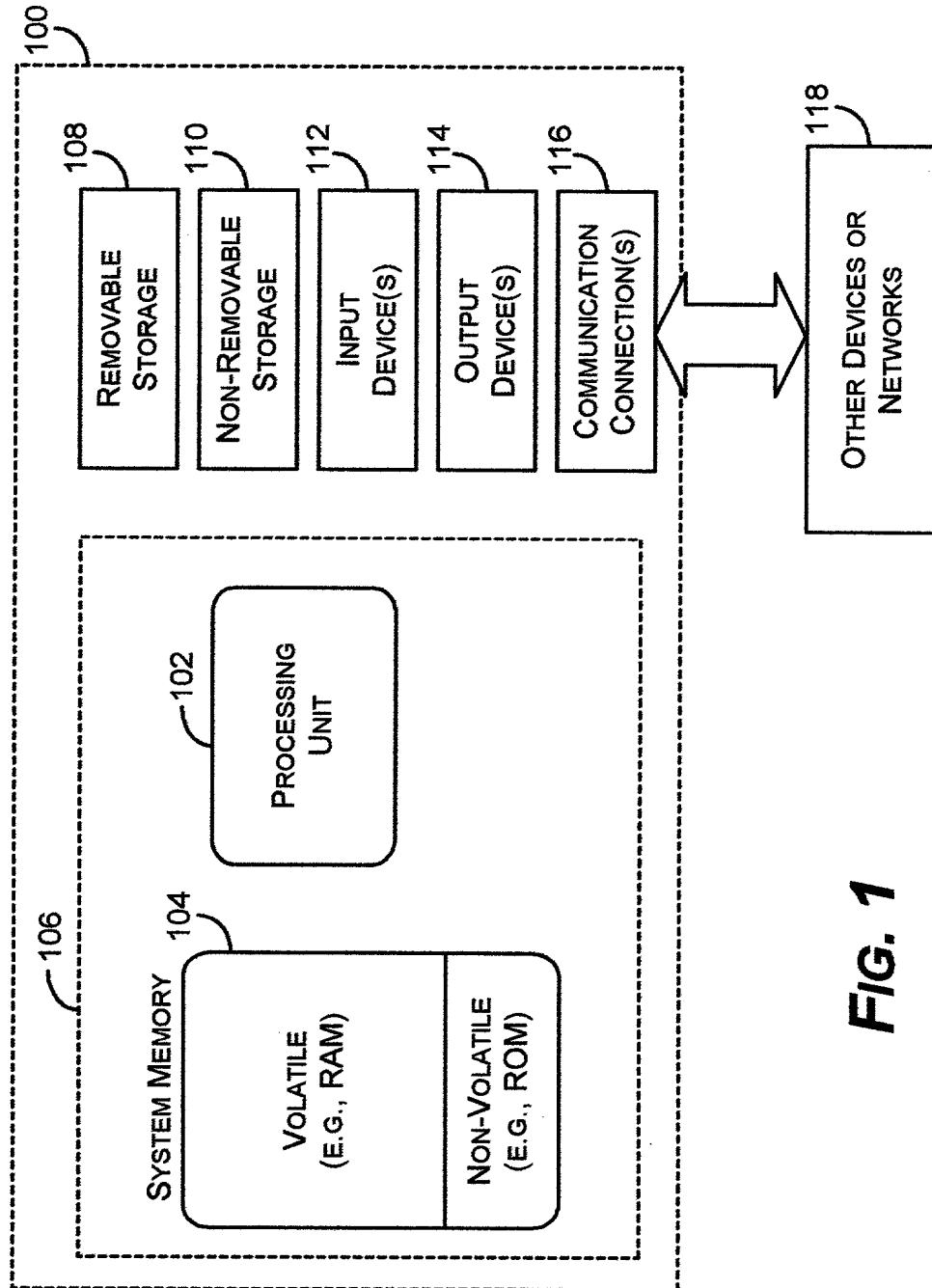


FIG. 1

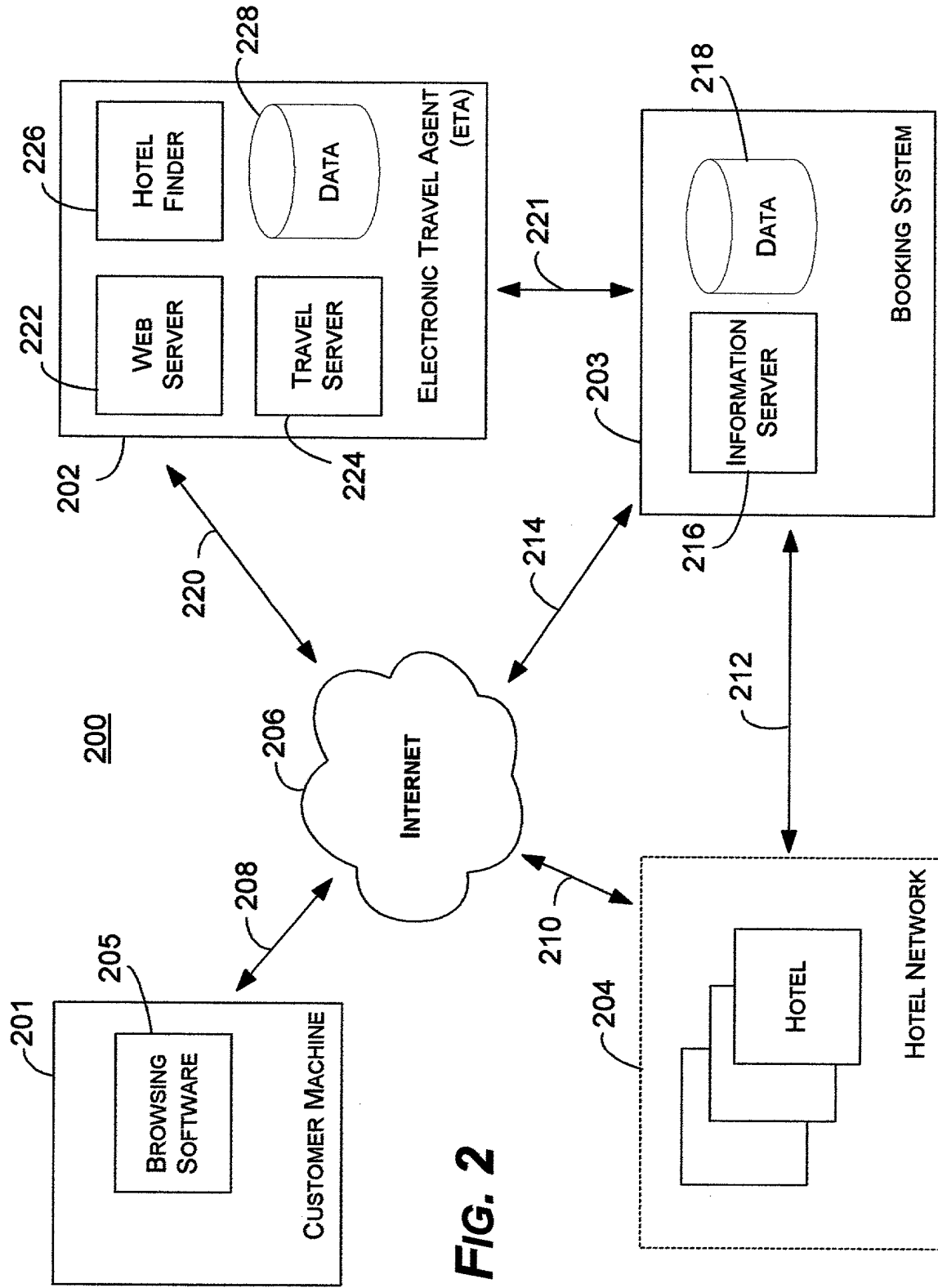


FIG. 2

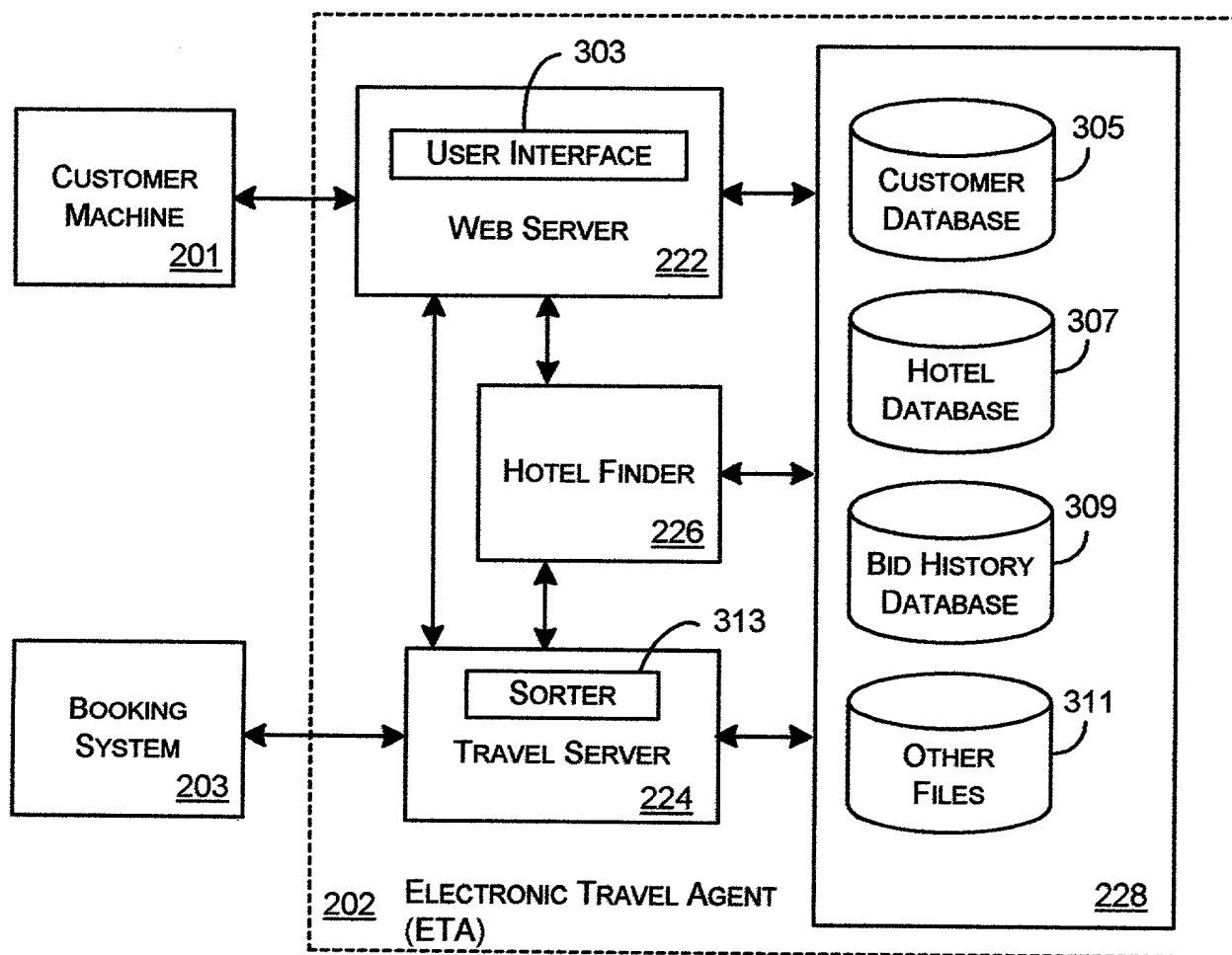
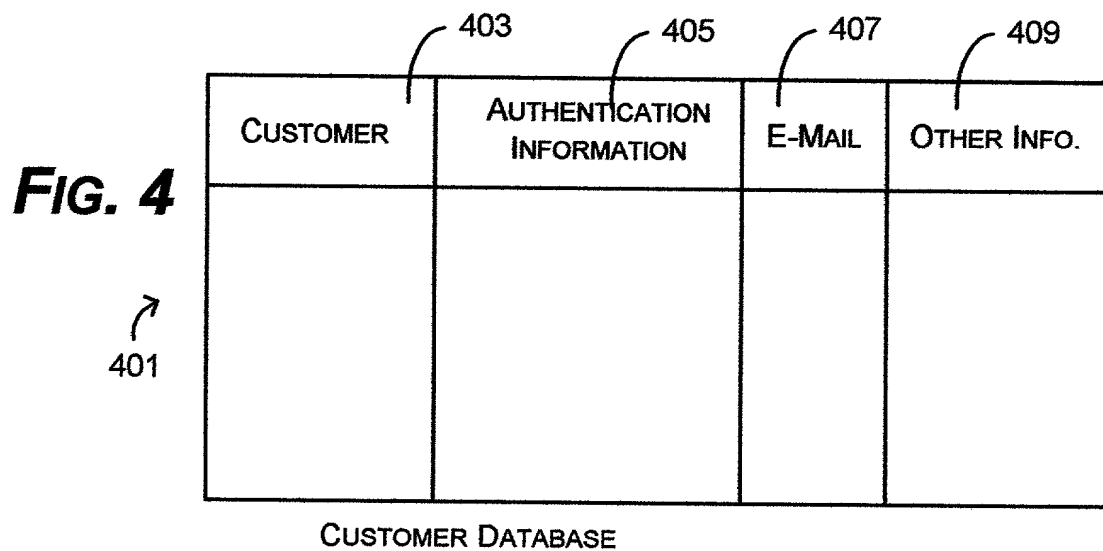
**FIG. 3**

FIG. 5

501 ↗

503	505	507	509	511	513
HOTEL ID	RATING	DESTINATION	AREA	AVERAGE RATES	OTHER INFO.

HOTEL DATABASE

FIG. 6

601 ↗

603	605	607	609
BID ID	CUST. ID	CHECK IN DATE	OTHER BID INFO.

BID HISTORY DATABASE

701

ETA USER INTERFACE

WHERE AND WHEN WOULD YOU LIKE TO STAY?

703

-- SELECT A DESTINATION --

CHECK IN: 705

CHECK OUT: 707

709

NEXT

A screenshot of a software window titled "ETA USER INTERFACE". The window contains a form with the heading "WHERE AND WHEN WOULD YOU LIKE TO STAY?". Below the heading is a dropdown menu labeled "703" with the text "-- SELECT A DESTINATION --". Underneath the dropdown are two input fields: "CHECK IN:" followed by a text box labeled "705", and "CHECK OUT:" followed by a text box labeled "707". In the bottom right corner of the form is a button labeled "709" with the text "NEXT".

FIG. 7

801

ETA USER INTERFACE

SELECT AN AREA IN DESTINATION:

803

805

809

NEXT

A screenshot of a software window titled "ETA USER INTERFACE". The window contains a form with the heading "SELECT AN AREA IN DESTINATION:". Below the heading is a map of Manhattan labeled "803" with areas marked "W", "E", "M", and "D". Below the map is a list of area options enclosed in a dashed box, labeled "805". The options are: "Midtown" (checked), "Downtown", "All", "Upper East Side", and "Upper West Side". In the bottom right corner of the form is a button labeled "809" with the text "NEXT".

FIG. 8

901

ETA USER INTERFACE

905 CLASS OF HOTEL AND PRICE

HOTEL CLASS:	AVERAGE RATE
<input type="radio"/> ☆☆ VALUE	\$ 150.00
<input checked="" type="radio"/> ☆☆☆ MODERATE	\$ 250.00
<input type="radio"/> ☆☆☆☆ LUXURY	\$ 300.00

907

TELL US YOUR PRICE:

\$.00

903

909 NEXT

FIG. 9

1001

ETA USER INTERFACE

1003 IDENTIFY YOURSELF:

CUSTOMER ID:

1007 CREATE

1005 PASSWORD:

☒ 1009 SAVE PASSWORD

1011 E-MAIL ADDRESS:

1013 Bid

FIG. 10

1101

ETA USER INTERFACE

CREATE A CUSTOMER ACCOUNT

1103 CUSTOMER ID: 1105 PASSWORD:

1107 E-MAIL ADDRESS: ☐ SEND ME INFO.

1109 HOME ADDRESS: 1115 TRAVEL PREFERENCES:

1113 CREDIT CARD INFORMATION 1117 CREATE

FIG. 11

1201

ETA USER INTERFACE

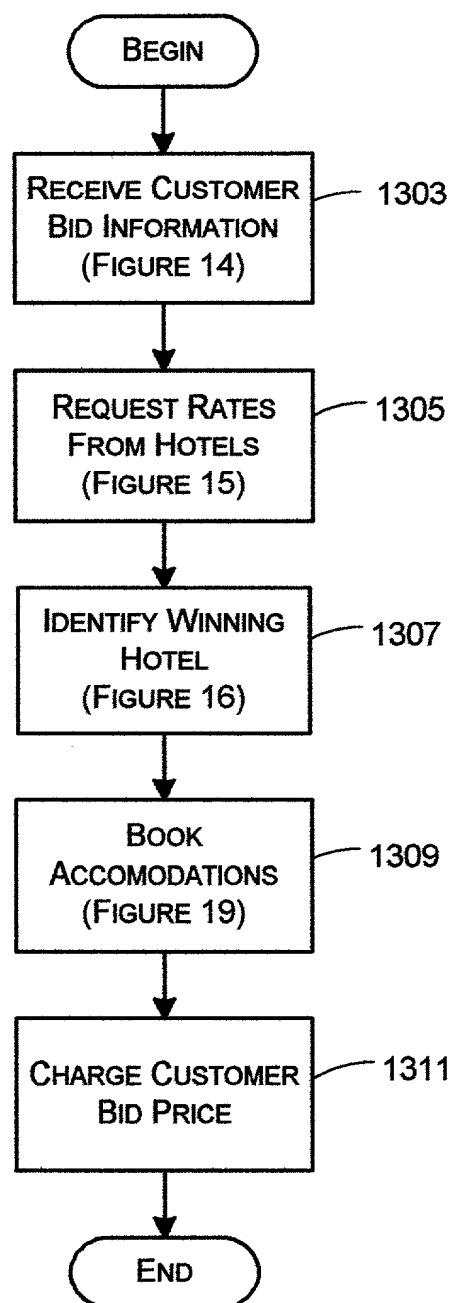
CONGRATULATIONS, YOU GOT YOUR ROOM!

YOU BID: \$ XXX.00 PER NIGHT
TAXES: \$ XX.00 PER NIGHT
TOTAL BILLED TO YOUR CREDIT CARD: \$ XXX.00

YOUR TRAVEL INFORMATION:
HOTEL NAME
HOTEL ADDRESS

CHECK IN: MM/DD/YYYY
CHECK OUT: MM/DD/YYYY

FIG. 12

FIG. 13

9/13

FIG. 14

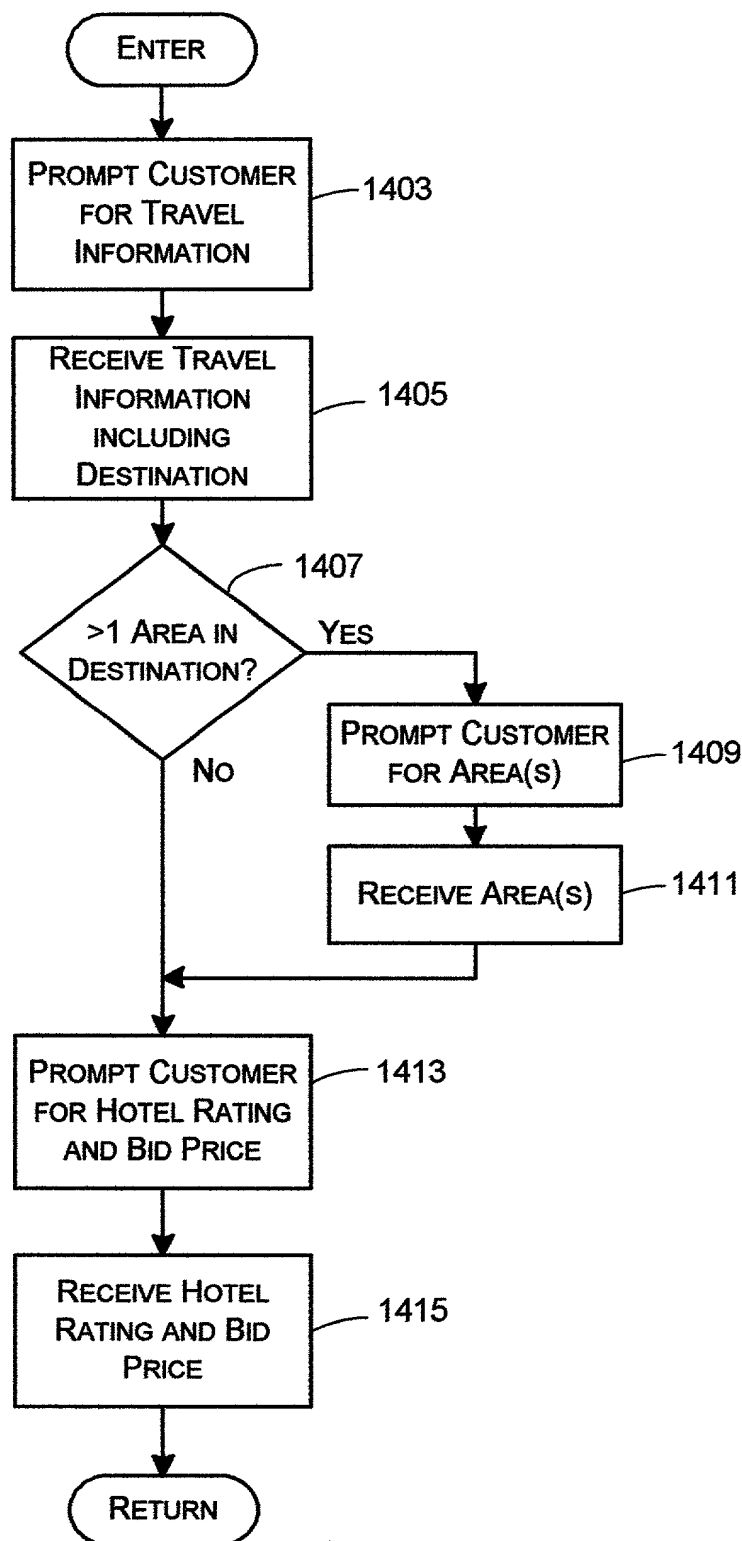
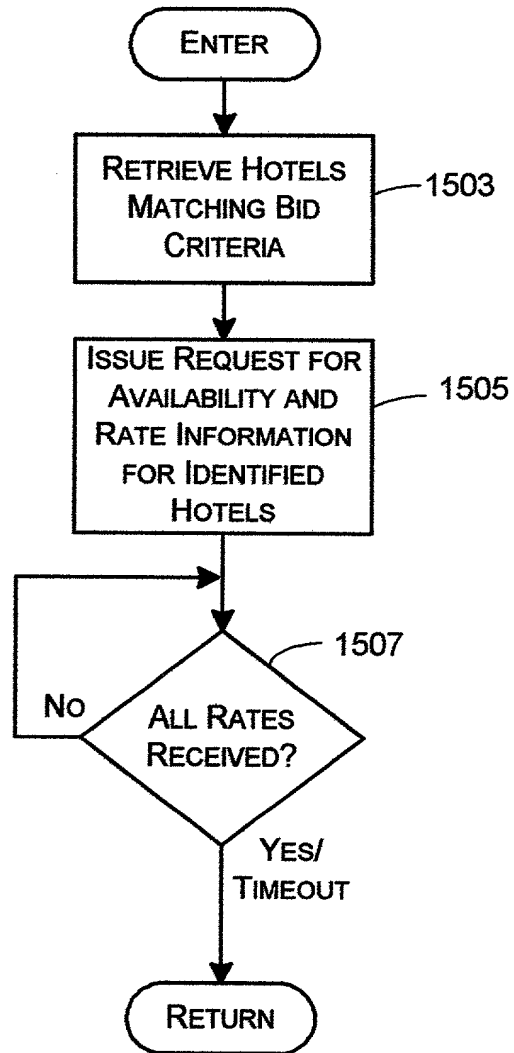


FIG. 15

11/13

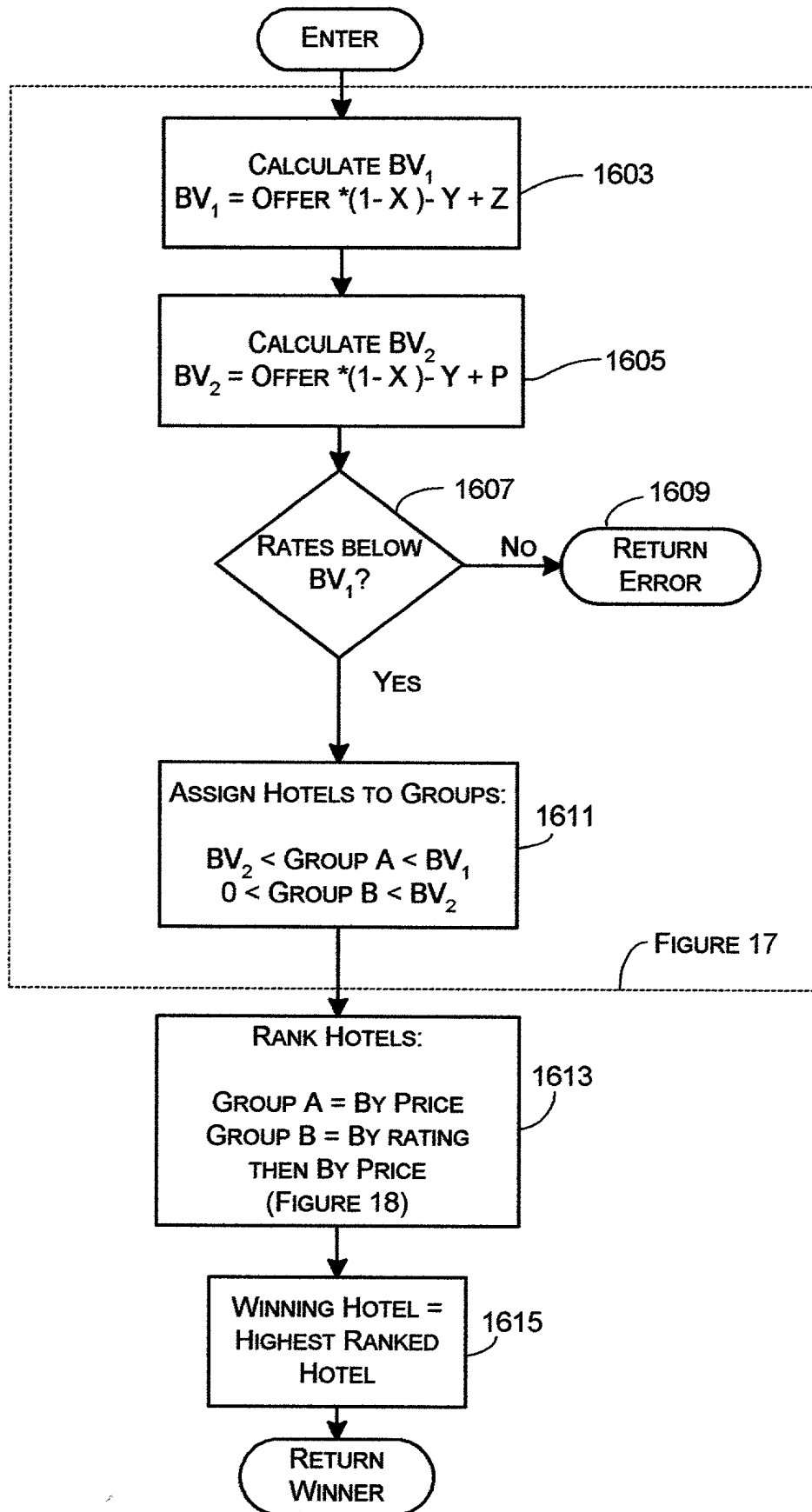


FIG. 16

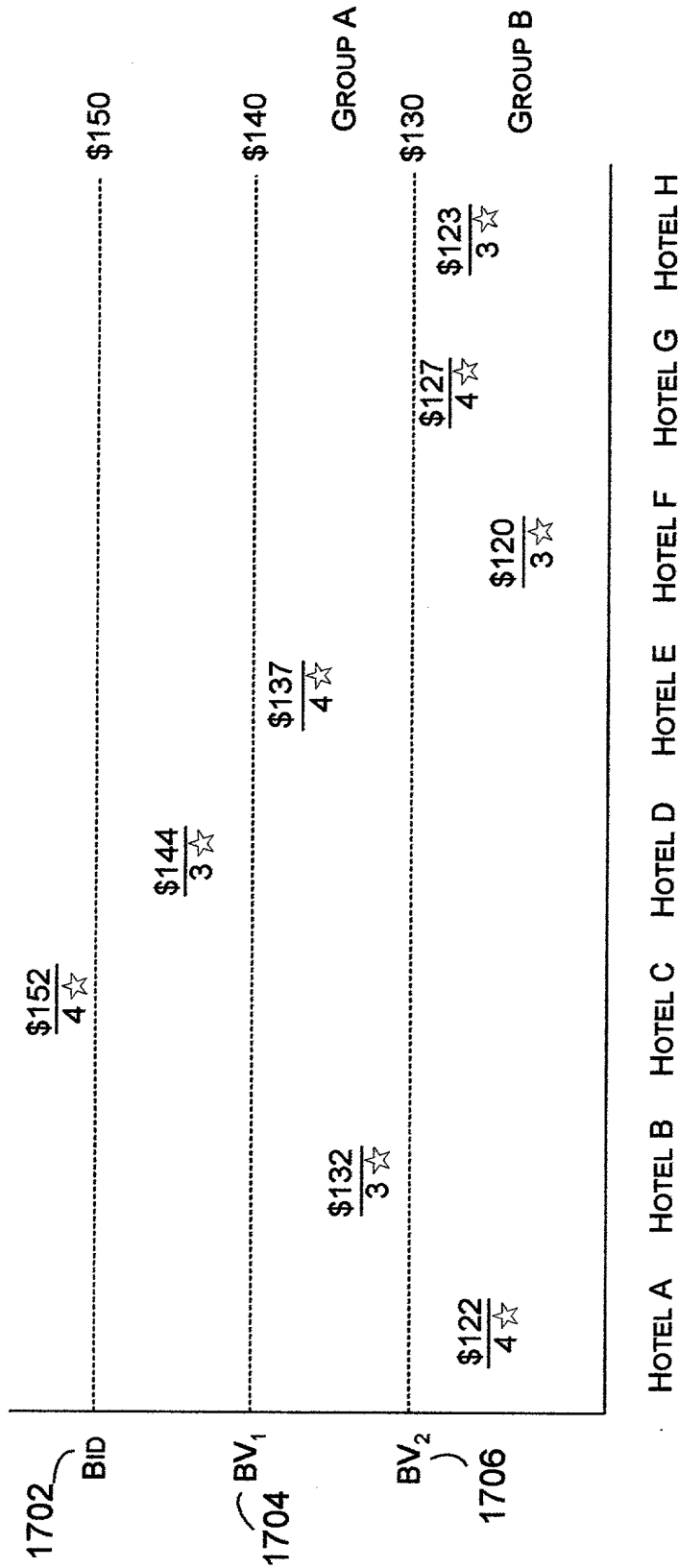


FIG. 17

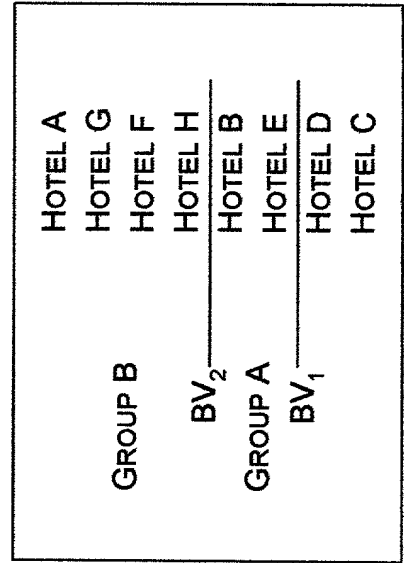


FIG. 18

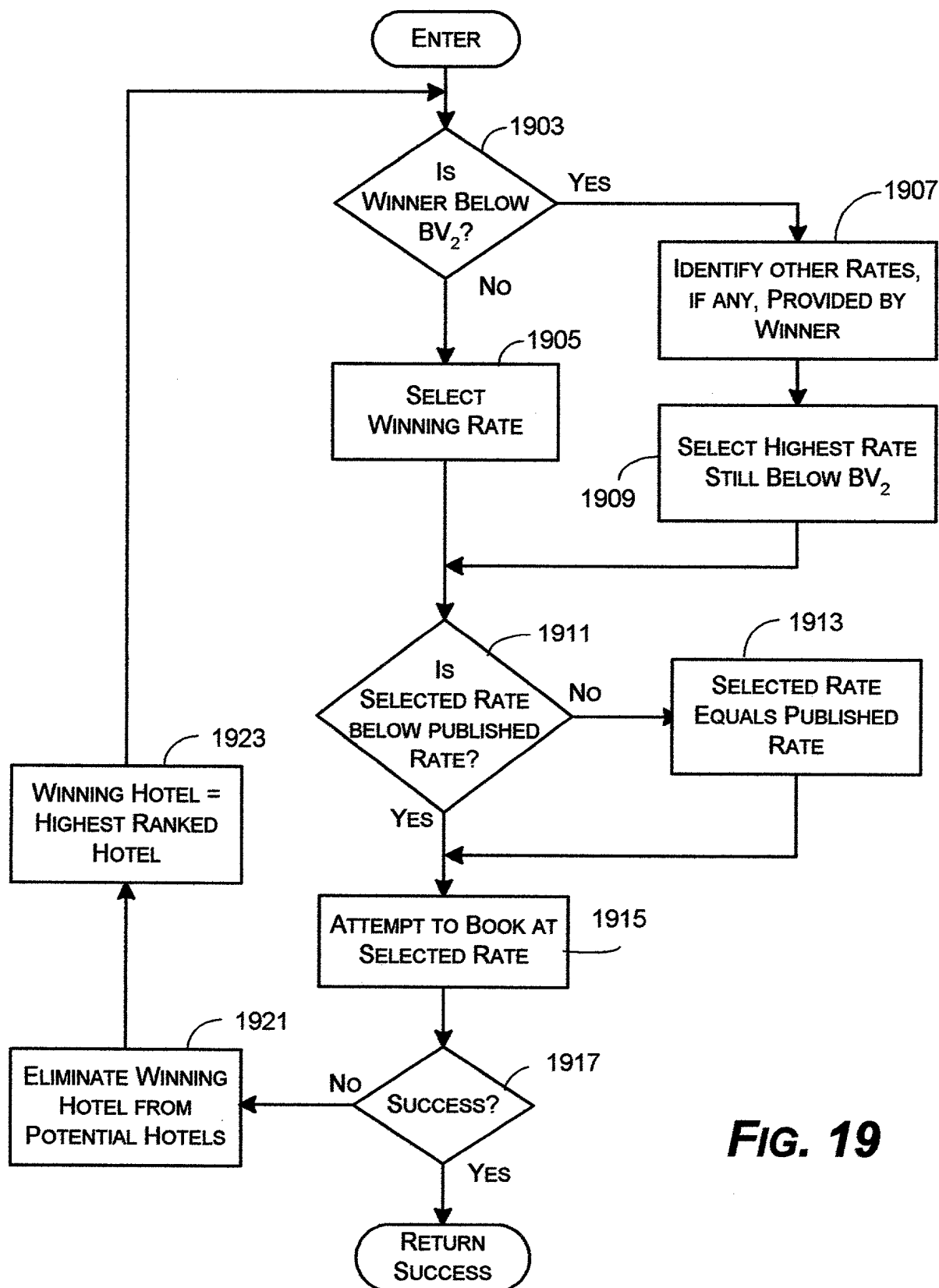


FIG. 19

COMBINED DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first, and sole inventor (if only one name is listed below) or an original, first, and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: "System And Method For Matching An Offer With A Quote," the specification of which is attached hereto unless the following box is checked:

☐ was filed on _____, as United States Application Serial No. _____ or PCT International Application No. _____ and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. § 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)

Priority Not Claimed

_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	<input type="checkbox"/>
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	<input type="checkbox"/>

I hereby claim the benefit under 35 U.S.C. § 119(e) of any United States provisional application(s) listed below.

_____ (Application Number)	_____ (Filing Date)
_____ (Application Number)	_____ (Filing Date)

I hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s), or § 365(c) of any PCT international application(s) designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application(s) in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. § 1.56 which became available between the filing date of the prior application(s) and the national or PCT international filing date of this application.

(Application Number)

(Filing Date)

(Status – patented, pending, abandoned)

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As a named inventor, I hereby appoint the following attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

Albert S. Michalik, Reg. No. 37,395 Roger D. Wylie, Reg. No. 36,794
Daniel D. Crouse, Reg. No. 32,022 Katie E. Sako, Reg. No. 32,628

Address all telephone calls to Roger D. Wylie at telephone number (425) 653-3571.

Address all correspondence to: Michalik & Wylie, PLLC
14645 Bel-Red Road
Suite 103
Bellevue, WA 98007

I hereby declare that all statements made herein of my own knowledge are true, that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of **sole or first inventor**: Barnaby Merrick Harford

Inventor's signature _____

Date 8/24/00

Country of Citizenship: United Kingdom

Residence: 201 Galer Street, Apt 524, Seattle, Washington 98109

Post Office Address: Same

Full name of **second inventor**: Sendi Widjaja

Inventor's signature _____

Date 8/23/00

Country of Citizenship: Indonesia

Residence: 18537 NE 19th Place, Bellevue, Washington 98008

Post Office Address: Same



Additional inventors are being named on separately numbered sheets attached hereto.

Full name of **third inventor**: Maja Bogdanovic

Inventor's signature Maja Bogdanovic

Date 08/23/00

Country of Citizenship: Canada

Residence: 715 2nd Ave. West, apt 106, Seattle, Washington 98119

Post Office Address: Same

Full name of **fourth inventor**: Clair Hector

Inventor's signature _____

Date _____

Country of Citizenship: United Kingdom

Residence: 4016 Phinney Avenue North, Seattle, Washington 98103

Post Office Address: Same

☐ Additional inventors are being named on separately numbered sheets attached hereto.

2530 declaration

Full name of third inventor: Maja Bogdanovic

Inventor's signature

Maja Bogdanovic

Date 08/23/00

Country of Citizenship Canada

Residence: 715 2nd Ave. West, apt 106, Seattle, Washington 98119

Post Office Address Same

Full name of fourth inventor: Clair Hector

Inventor's signature

Clair Hector

Date 8/25/00

Country of Citizenship: United Kingdom

Residence: 4016 Phumey Avenue North, Seattle, Washington 98103

Post Office Address: Same



Additional inventors are being named on separately numbered sheets attached hereto.

2530 declaration

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